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Notice of Allowability

Application No.

10/057,043

Applicant(s)

RAMANUJAN ET AL.

Examiner

Brian J. Gillis

Art Unit

2141

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the Request for Continued Examination filed 10/5/2007.
2. ☒ The allowed claim(s) is/are 1-4, 6, 7, 9-17, 27, 29, 30, 35-39, 41, 42, 44-46, 53 and 55.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date <u>10162007</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |


JASON CARDONE
SUPERVISORY PATENT EXAMINER

DETAILED ACTION

This action is responsive to the Request for Continued Examination filed October 5, 2007. Claims 1-4, 6, 7, 9-17, 27, 29, 30, 35-39, 41, 42, 44-46, 53, 55, and 57-60 were pending. *Claims 1-4, 6, 7, 9-17, 27, 29, 30, 35-39, 41, 42, 44-46, 53, and 55 are allowed.*

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Kent J. Sieffert on October 16, 2007.

The application has been amended as follows:

1. A method comprising:

establishing a packet tunnel between a first local area network and a second local area network, the packet tunnel having a source network address within an address space of the first local area network and a destination network address within an address space of the second local area network;

reserving for the packet tunnel an amount of bandwidth within an access link;

detecting a network attack;

in response to the detected network attack, splitting the packet tunnel by selecting an intermediate network device, wherein the intermediate network device has

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a network address from a network address space other than the address space of the first local area network and the address space of the second local area network,
wherein the first local area network and the second local area network are separated by a public network, and wherein the intermediate network device has a network address from a network address space of the public network;

establishing a first packet tunnel from the first local area network to the intermediate network device;

establishing a second packet tunnel that originates from the intermediate network device to the second local area network;

canceling the reserved bandwidth for the packet tunnel;

reserving from the second packet tunnel an amount of bandwidth within the access link; and

communicating a virtual private network (VPN) traffic from the first local area network to the second local area network by redirecting the VPN traffic from the first local area network to the intermediate network device through the first packet tunnel and forwarding the VPN traffic from the intermediate network device to the second local area network through the second packet tunnel.

9. The method of claim 1, further comprising:

upon detecting a network attack, sending a message from the a destination network device for the packet tunnel to the a source network device for the packet tunnel instructing the source network device to establish the first packet tunnel with the intermediate network device.

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17. The method of claim 16, wherein establishing a second packet tunnel comprises:

unsubscribing to the multicast channel;

selecting one of the multicast network addresses for ~~the~~ a new destination

network address;

establishing the second packet tunnel using the new destination network

address; and

subscribing to a multicast channel for the selected multicast network address.

18. Canceled

19. Canceled

20. Canceled

21. Canceled

22. Canceled

23. Canceled

24. Canceled

25. Canceled

26. Canceled

27. A method comprising:

establishing a virtual private network service including a packet tunnel having a source network address within an address space of the a first local area network and a destination network address within an address space of the a second local area network;

reserving for the packet tunnel an amount of bandwidth within an access link;

detecting a network attack;

establishing a new virtual private network service upon detecting the network attack, by selecting an intermediate network device having a network address from a network address space other than the address space of the first local area network and the address space of the second local area network, wherein the first local area network and the second local area network are separated by a public network, and wherein the intermediate network device has a network address from a network address space of the public network;

establishing a first packet tunnel from the first local area network to the intermediate network device; and

establishing a second packet tunnel that originates from the intermediate network device to the second local area network;

canceling the reserved bandwidth for the packet tunnel after establishing the new virtual private network service; and

reserving for the second packet tunnel an amount of bandwidth within the access link upon canceling the reserved bandwidth for the packet tunnel.

31. Canceled

32. Canceled

33. Canceled

34. Canceled

35. A system comprising

a source device coupled to a first local area network; and

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a destination device coupled to a second local area network,
wherein the source device and the destination device establish a packet tunnel having a source network address within an address space of the first local area network and a destination network address within an address space of the second local area network, reserve for the packet tunnel an amount of bandwidth within an access link, upon detecting a network attack, select a new network address from a network address space other than the address space of the first local area network and the address space of the second locale area network, and split the packet tunnel by establishing a first packet tunnel from the first local area network to an intermediate network device having the new network address and establishing a second packet tunnel from the intermediate network device to the second local area,

wherein the first local area network and the second local area network are separated by a public network, and wherein the intermediate network device has a network address from a network address space of the public network,

wherein the destination device cancels the reserved bandwidth for the packet tunnel after the second packet tunnel is established, and reserves for the second packet tunnel an amount of bandwidth within the access link upon canceling the reserved bandwidth for the packet tunnel, and

wherein the source device communicates virtual private network (VPN) traffic from the first local area network to the second local area network by redirecting the VPN traffic from the first local area network to the intermediate network device through the

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first packet tunnel for forwarding the intermediate network device to the second local area network through the second packet tunnel.

38. The system of claim 35, wherein the destination device and the source device comprise edge routers that couple local area networks to the public network.

39. The system of claim 35, wherein the destination device detects an attack on an access link coupling the destination device to the public network.

47. Canceled

48. Canceled

49. Canceled

50. Canceled

53. A computer-readable medium comprising instructions to cause a processor to:
establish a packet tunnel having a source network address within an address space of a first local area network and a destination network address within an address space of a second local area network;

reserve for the packet tunnel an amount of bandwidth within an access link;

detect a network attack;

in response to the detected network attack, split the packet tunnel by selecting an intermediate network device, wherein the intermediate network device has a network address from a network address space other than the address space of the first local area network and the address space of the second local area network, wherein the first local area network and the second local area network are separated by a public

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network, and wherein the intermediate network device has a network address from a network address space of the public network;

communicate the network address to the a source device for the packet tunnel for establishing a first packet tunnel from the first local area network to the intermediate network device;

establish a second packet tunnel that originates from the intermediate network device to the second local area network;

cancel the reserved bandwidth for the packet tunnel;

reserve for the second packet tunnel an amount of bandwidth within the access link; and

receive virtual private network (VPN) traffic that was redirected from the first local area network to the intermediate network device through the first packet tunnel and forwarded the VPN traffic from the intermediate network device to the second local area network through the second packet tunnel.

57. Canceled

58. Canceled

59. Canceled

60. Canceled

REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance:

The prior art of record fails to teach neither singly nor in combination, the claimed limitations of "in response to the detected network attack, splitting the packet tunnel by

selecting an intermediate network device, wherein the intermediate network device has a network address from a network address space other than the address space of the first local area network and the address space of the second local area network, wherein the first local area network and the second local area network are separated by a public network, and wherein the intermediate network device has a network address from a network address space of the public network" as stated in claim 1 and similarly stated in claims 27, 35, and 53. These limitations, in conjunction with other limitations in the independent claims, are not specifically disclosed or remotely suggested in the prior art of record. A review of claims 1-4, 6, 7, 9-17, 27, 29, 30, 35-39, 41, 42, 44-46, 53, and 55 indicated claims 1-4, 6, 7, 9-17, 27, 29, 30, 35-39, 41, 42, 44-46, 53, and 55 are allowable over the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian J. Gillis whose telephone number is 571-272-7952. The examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rupal Dharia can be reached on 571-272-3880. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Brian J Gillis
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10/16/2007


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